

# School Street Closures and Traffic Displacement Project: A Literature Review with semi-structured interviews



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Making Roads Safer



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## Executive Summary

This report sets out the findings of a review of the existing literature on the impact of school street closures designed to create safer spaces for walking, cycling or street play. The evidence from the literature was supplemented by a number of semi-structured telephone interviews with relevant officers responsible for local authority school street closure schemes.

The review focuses in particular on whether any traffic displacement brought about by schemes was associated with negative safety issues in surrounding streets.

### **The main findings are:**

#### **On the nature, scale and coverage of the evidence**

- We located 16 studies, all of which had not been peer reviewed although one was a Masters dissertation
- The locations covered by the studies included Camden, Edinburgh, Solihull, Perth and Kinross, East Lothian, Croydon, Southampton, and the region of Flanders, Belgium.

#### **On the motivators of the street closure schemes there is**

- Strong evidence that reported road casualties were not a motivator of the closure schemes
- Strong evidence that local perceptions of danger and safety risk were the key motivators
- Strong evidence that the key purpose or one of the key purposes of the schemes was to increase the number of children travelling actively to school.

#### **On the impact of the schemes on active travel and vehicles levels and on local support there is**

- Medium strength evidence that in almost all cases the total number of motor vehicles across school closures and neighbouring streets reduces
- Medium strength evidence that active travel levels increased at the schools with street closures
- Medium strength evidence that closures are supported by the majority of parents and residents living on the closed and neighbouring streets and that their support increases after any trial period.

#### **On the impact on neighbouring streets**

- Strong and consistent evidence that traffic displacement does not cause road safety issues of any significance and that mitigating measures, where needed, have been applied successfully
- Medium strength evidence that perceived road safety on surrounding streets as well as the closure streets improves as active travel increases

- Medium strength evidence that alternative parking schemes such as “Park and Stride” help reduce traffic displacement although a small number of badly parked vehicles can remain an issue.

## Purpose, background and approach

### **Purpose**

The objective of this research project is to assess the literature on school street closures (SSCs) and understand:

- To what extent vehicular traffic is displaced to adjacent streets
- What impact this has on the overall outcome of the intervention in terms of road safety.

The review will assess the volume and strength of existing evidence and methodologies used to monitor motor traffic displacement. While the focus is primarily on SSCs, the review will also briefly consider another instance where sections of highways are temporarily closed to motor vehicle traffic to create a safer space for walking, cycling or street play. This wider landscape, including another temporary restriction to vehicular traffic, may be of value as evidence of consequent changes in road safety.

### **Street closures – definition, development and context**

#### **Definition of school street closure**

SSCs have been defined as: School street closures aim to ease the congestion, poor air quality and road safety concerns that many schools experience during drop-off and pick-up times, by facilitating timed traffic restrictions on the road outside the school gates.<sup>1</sup> A slightly<sup>2</sup> differently worded definition from the London Borough of Croydon says: A SSC is a section of road near a school entrance, which at the start and end of school days is restricted to use by pedestrians and cyclists, with most motor vehicle traffic prohibited. Vehicles are permitted to remain parked and to drive out of the road at any time.

SSCs are a relatively new type of intervention in the UK. It is of note that all SSCs focus on primary schools (ages 4-11). Their closest antecedents are most strongly linked with School Play Streets in the UK. Play streets originated in the UK in the 1930s, inspired by a scheme from 1920s New York. Rather than keeping children away from cars, certain residential streets were closed to traffic between designated hours ‘to provide play spaces in localities where there are no playgrounds’. The closed streets were known as ‘play streets’; play, not traffic, was their primary purpose. Their location – in less affluent districts with low levels of residential car ownership – showed that their main targets were motorists driving through residential urban streets on the way from one part of a city to another. Unlike previous approaches to child safety, play streets started from the assumption that city children had the right to play in the streets where they lived, and that cars, not children, were the main problem.<sup>3</sup> In 1937, Robert Perkins, Conservative MP for Stroud, introduced a Street

Playgrounds Bill to Parliament. The Bill, which had cross-party support, enabled local authorities to close designated streets to traffic entirely or restrict vehicular access during identified hours. It became law in July 1938 in England and Wales (with a clause enabling similar legislation in Scotland) remaining in force until 1960, when Section 49 of the Road Traffic Act superseded its powers.

In the past decade a range of studies have emerged, which discuss how through street closures children can be more physically active. Some of these closures involve closing a road to vehicular traffic directly after schools finish in the afternoon. The Bristol-based organisation Playing Out has been instrumental in supporting an increase in street play across Bristol and across other UK towns and cities. Occasionally, and by chance, some of these will be close to schools although ironically not directly on streets with schools as previous local authority highway approaches pre-SSC would have likely opposed this approach.

This review found that SSCs vary both in the terms used to describe them and their stated objectives:

#### ***Terms***

For example, across London SSCs are usually referred to as Healthy School Streets (HSS). This reflects a wider Healthy Streets programme that commenced in 2014 through Transport for London. In keeping with that programme, SSCs in the capital have a London-wide branding. In Solihull the term School Street Zone is used while at Perth and Kinross Council the term used is School Exclusion Zone.

#### ***Objectives***

SSCs set out to address a range of problems. As the London Borough of Camden state in their Healthy School Streets literature, schools often suffer from a common thread of issues at the start and end of the school day around school entrances.<sup>4</sup> These revolve around traffic putting the large concentration of school children at risk, and inconvenience and nuisance caused to local residents by inconsiderate parking, honking horns and distracted driving. There is also an implied road safety benefit based on far fewer motor vehicle movements (some exemptions e.g. disabled parents, children, residents etc.) although this assumption may not include surrounding streets where moving motorised traffic may have relocated to. As Camden Council add:

“Although Healthy School Streets currently exists as a separate project at Camden, it may work better as a range of options for schools reporting road safety concerns, with this being the default where the school is supportive as it likely delivers the best possible road safety improvements and behaviour change impact.”

#### ***Definition of road safety for the purposes of this review***

Road safety can be defined as ‘freedom from the liability of exposure to harm or injury on the highway’.<sup>5</sup> This is in contrast to much of what is commonly misunderstood to be road safety. As researchers noted almost three decades ago,

‘road safety usually means the unsafety of the road transport system’.<sup>6</sup>

Road safety is more than about the avoidance of being injured. It must also address the perception of risk of harm and freedom from harm, and its manifestation at the individual, community and societal levels. By way of example, according to the British Crime Survey, speeding traffic was rated as the most serious problem of 16 social problems, all of which were rated on a scale from 1 (not a problem at all) to 4 (very big problem). Males and females both rated speeding traffic as the greatest problem in local communities – so a lack of safety. This rating also held true whether respondents were young, middle aged, or old.<sup>7</sup> Perception of safety on and around the highway is an important aspect of what we understand road safety to be comprised of.

This review has sought to identify literature which addresses SSC's in the context of road safety concerns and objectively reported issues. The latter may include displacement of parked and moving vehicular traffic from school streets themselves which may present as road safety concerns, whether to residents, parents, children, and/or other street users. Issues identified prior to the review, through reading Council reports provided by Sustrans and through discussions, as likely contenders were: higher volumes of vehicular traffic, vehicular traffic speed, poorly parked vehicles, poor driver behaviour e.g. three-point turns in restricted areas with poor sight-lines.

### ***Overall review inclusion criteria***

For this literature review we have located and included studies of the impact of school street closures that address:

- Traffic displacement and measurement of traffic displacement
- Traffic evaporation<sup>1</sup>
- Street closures (including school street closures) implementation and measurement.

Our specific inclusion criteria were:

<b><i>Target audiences/populations included in interventions</i></b>	All adults and children
<b><i>Study design</i></b>	Pre-post interventions; experimental and quasi-experimental studies (i.e. studies with some form of control or comparison group), reviews and qualitative research.
<b><i>Dates</i></b>	2010 to present (i.e. 10 years). This time period was selected as SSCs have only been evidenced in any literature during the past decade.
<b><i>Geography</i></b>	The global literature was searched for papers published in English.
<b><i>Search terms</i></b>	School street closure; traffic migration; traffic evaporation; traffic displacement; open street; vehicle volume; parent perception;

<sup>1</sup> Usually focused on private motorized traffic where journeys can no longer be located post intervention and may have been transferred to non-motorised modes or not undertaken.

	exemption; restriction; outside school; school gate; school travel car free; adjacent street; CPZ. Pedestrian zone; Safe routes; schools streets; child friendly; pick up and drop off times; school exclusion zone; healthy school streets; air quality; road safety; temporary traffic order; temporary road closure; moving vehicle offence; traffic regulation order; traffic demand management; bollard; car-free; active travel school; street event/party.
<b><i>Search engines used were</i></b>	TRIDS; TRB; ScienceDirect; and Google Scholar.
In addition, grey literature was also included such as governmental departments (local as well as national) and road safety institute reports and bodies addressing SSCs.	

### ***Supplementation of evidence by interview***

The use of semi-structured interviews was an additional element to the project, not originally planned at the bid submission stage. This was added, with approval of the funder, after it became clear that the literature on SSCs was limited. The intention was to augment Council reports on SSCs with up-to-date (as of March/April 2020) perspectives and access to newer evidence via direct contact with local authority officers working on SSCs.

Requests were made in February and March for interviews by phone. Ten remote interview requests were made and five interviews undertaken. Interviews were recorded for note taking purposes only and subsequently destroyed. One recording failed to work and notes of that discussion relied solely on notes taken. The Topic Guide with questions is provided in Annex 1. Interviewee names are not reported. The local authorities participating were:

- London Borough of Camden
- London Borough of Croydon
- London Borough of Southwark
- Solihull Metropolitan Borough Council
- Southampton City Council.

In addition to these, an unstructured interview was held with the City of Edinburgh Council in February.

### ***Limitations***

Despite the origins of SSCs being traceable back to at least 2009 in Italy, the closure to vehicular traffic of streets outside and close to school entrances is still a largely undocumented intervention measure in scientific research. The result is that there is very little by way of literature, at least in the English language. That which exists is, in the main, almost wholly taken from local authority reports charting plans for, and implementation of, SSCs. It is hard to verify this data other than to note a consistency in findings which provides some confidence through triangulation.



Consequently, the literature identified and drawn on is derived from a small sample of local authorities. It is, therefore, impossible to make conclusions with absolute certainty which might be the case if there were systematic reviews, and meta-analysis. We rely on relatively basic pre- and post-intervention assessments from a sample of local authorities in Scotland and England which we cannot, on the evidence available, claim to be representative.

Lastly, not being a systematic review and also with a limited timescale for searches, there is a greater likelihood of some studies not being located. This is despite the attempts at cross checking including scanning the references of studies found and snowballing of contacts for sources via Sustrans and local authorities.

## The Review

### Literature

The literature review searches located 16 studies and reports that met the inclusion criteria. All of these are not peer reviewed but grey literature, although one was a Masters dissertation.

The key relevant findings of each study are set out in the following sections.

#### ***City of Edinburgh Council***

The City of Edinburgh Council (CEC) has been actively working on SSCs for over four years. In a Masters dissertation, Monteith-Skelton reported on various aspects of pre- and post-intervention findings addressing perceived road safety.<sup>8</sup> In this study of ten SSCs, through pre and post perception surveys of parents, teachers and local residents, questions were asked on aspects of road safety. This included whether streets felt safer during the restrictions period. The parents agreed that the streets surrounding the school gates felt safer after the scheme was implemented and they perceived improved safety for children. This aligned with residents' responses that post implementation, on the whole motorists were complying with the SSCs. Moreover, residents disagreed with the suggestion that the scheme would make life more difficult.

CEC undertook early analysis of the pilot schemes in 2016<sup>9</sup> and they reported on various monitoring approaches. This included vehicle speeds and volumes with results and descriptions for each school including objective measurements of average speed. Speed changes varied from reductions of between 1.5 to over 2mph.

The three main issues established through consultation were concerns related to motorist non-compliance, displacement of the problem(s) to other streets, and inconvenience and difficulties associated with the restrictions.

Perceptions of motorist compliance improved, seeing notable increases in agreement levels for both school street and peripheral street residents. Almost one-third of parents and one-quarter of peripheral residents, however, still perceive non-compliance as an issue.

Based on representations received throughout the pilot monitoring period, occasional requests for Police presence were made at certain locations experiencing non-compliance. Police Scotland issued numerous warnings to motorists. Whilst the Police were aware of non-compliance, insufficient resources were cited as the reasons for their irregular presence in the vicinity of schools.

Motor vehicle displacement concerns focused on a perceived ripple effect of vehicle speeds and volumes and parking issues to peripheral streets. The average speed reduction across all school streets (restricted streets) surveyed was 1.2mph, whilst 1.2mph was also the average reduction seen across all surrounding streets. Motorists were found to comply with speed limits on the vast majority of surrounding streets.

The overall net difference in volume across all streets surveyed was 2,259 fewer vehicles. Vehicle numbers reduced by 3,179 on school streets and increased by 920 on surrounding street over the same period. The net effect was fewer vehicles on streets around schools following the initiative.

A key lesson learned from the pilots was the need for infrastructure provision: ensuring peripheral streets can accommodate displaced traffic movements, and contain appropriate parking capacity; that peripheral streets can safely enable new 'Park and 'Stride' movements via appropriate footways and crossing points; and sufficient space and visibility options for positioning signs (entry, and potentially internal repeater signs).

Significantly, the number of parents who perceived school streets as a difficulty halved to less than two in ten, while fewer than two in ten of school street residents also perceived the initiative as a difficulty. It is notable, however, that over one-third of residents on peripheral streets perceived that their daily life has been made more difficult by the initiative. Conversely, the number who disagreed with this notion increased notably following the launch of the initiative, with almost two-thirds of parents, over half of school streets residents, and over one-third of surrounding street residents not viewing the initiative as a difficulty. For surrounding street residents, there was an approximate equal split between those that agreed and disagreed that the initiative posed a difficulty, whereas 'before' more responses suggested people would find it more difficult.

The main benefit of the pilot, as identified by both residents and parents in the 'before' surveys, was improved safety of children travelling to/from school. This was identified by 74% of residents and 72% of parents. In the 'after' surveys these proportions reduced to 50% and 65% respectively. This suggests that the percentage of both parents and residents who view improved safety for children as a benefit, fell from the 'before' to 'after' period - a notable 24% fall for parents. Perceptions are therefore less positive as far as child safety is concerned.

Both parents and residents were then asked explicitly about their feelings of safety on streets around the schools during restriction periods. 66% of parents agreed (22% strongly agreed) that the streets with vehicle restrictions felt safer during operating times, whilst 16% disagreed (5% strongly disagreed). The remainder did not know or had no view either way.

61% of school streets residents agreed (26% strongly agreed) that the streets with vehicle restrictions felt safer during operating times, whilst 13% disagreed (7% strongly disagreed). For residents on peripheral streets, 48% of residents agreed (13% strongly agreed) and 12% disagreed (8% strongly disagreed). These results show that approximately two-thirds of both parents and school streets residents perceive safety benefits as a result of the pilot. On peripheral streets, however, just under a half of residents perceive safety benefits as a result of the pilot. In all cases, approximately 15% of respondents disagreed that the pilot has made the streets safer. The net effect is, therefore, that of improved perceptions of safety, especially on school streets.

The pilot evaluation identified, in addition to perceived safety benefits:

- A reduction in vehicle speeds on both school streets and surrounding streets
- A reduction in vehicles outside the school gates on school streets
- A net reduction in traffic volumes across school streets and surrounding streets

- Air quality improvements with associated reductions in Nitrogen Oxides
- An indication that walking to/from school has increased, and that car trips to/from school have reduced, though cycling saw a marginal reduction (1%).

### ***Solihull MBC***

‘School Streets’ was an innovative pilot project led by Solihull Council. An Experimental Traffic Regulation Order (ETRO) for three streets commenced in 2018 prohibiting motor vehicles on Monday to Friday between set periods coinciding with school pick-up and drop-off times, with exemptions for permit holders. Permits have been issued to residents living on roads subject to the Order, with a limited number allocated to the associated schools and other parties, as deemed appropriate. The Order also introduced a 20mph Speed Limit throughout the ‘School Streets’ area effective at all times to promote road safety for all road users, and in particular for pedestrians and cyclists. The source of the outcome data was two Committee Reports with the first covering the initial six months of the scheme.<sup>10</sup>

In order to assess the impact of the scheme over the first 6 months a range of surveys, engagements and consultations took place with stakeholders, including the schools involved, residents, parents, and the Police, with the aim of understanding the impact and effectiveness of the scheme since its inception in September 2017.

Three SSC schemes had been introduced from September 2018. The figures show that at both Haslucks Green (+6%) and Oak Cottage (+13%) schemes there had been an overall increase in the level of support for the scheme over the six month period. At the Marston Green scheme there had been a slight overall reduction in the level of support (-3%). However, it was noted that this was set against a backdrop of 100% support for the scheme at launch dropping to 97% in favour, after six months.

Survey responses for the Oak Cottage scheme included residents living both within the school streets zone and surrounding roads. This data demonstrated general support for the scheme from residents of adjacent roads (60% of those responding) and an overall consensus (55%) that the scheme had had a positive effect on the local community. The data also indicated that in general, residents living in adjacent streets had not seen a significant increase in displacement parking as a result of the scheme. Anecdotally there was evidence of a positive improvement in the level of children walking to school with most children now walking, scooting or cycling at least part of their journey each day. The level of responses to the post scheme survey was 40% less than the pre-scheme survey, which may suggest that residents’ initial apprehension over the scheme has not been realised following its implementation.

Whilst the data shows that over the first six months of the scheme there had been a reduction in the number of vehicles driving through each zone, police officers were aware that some parents continued to access the road during periods that the restriction was in force. In the case of Oak Cottage, a number of motorists continued to use the route as a cut through. The scheme was not intended to remove all traffic from roads around each school. Nevertheless whilst a positive change

had occurred over the first six months, it was reported as disappointing that a number of motorists continued to drive through the restriction.<sup>11</sup>

The Council noted that further work was needed to reinforce and promote the restrictions to motorists at all three locations in order for the scheme to continue to positively impact driver behaviour. To this end they proposed to monitor the level of traffic through sample spot checks over the following 6 months. The Council's view was that without active enforcement and promotion of the scheme, driving within the restricted zone might increase.

Surveys of vehicle speed undertaken following the implementation of the new 20mph restriction show that at the Oak Cottage and Haslucks Green schemes, vehicle speed continued to exceed the 20mph limit in place. At the Marston Green scheme, vehicle speeds were recorded to be at and around 20mph. In response, site inspections were undertaken at all three sites to understand the impact on parking displacement. At the inception of both the Haslucks Green and Marston Green schemes, alternative parking locations for parents no longer able to access Stanton Road and Elm Farm Avenue respectively were identified. At Marston Green this alternative provision provided a convenient and accessible alternative that was well used by a large number of parents. At Haslucks Green an alternative facility had been identified and whilst there was some evidence of a small increase in displacement parking, this was dispersed across a number of roads and the impact therefore limited.

A 12 month progress report in 2019 sought and attained approval to make the three Experimental Traffic Regulation Orders permanent.<sup>12</sup> The officers report noted that whilst many motorists did adhere to the restrictions the greatest long-term risk to the scheme undoubtedly came from a lack of enforcement, as this was likely to lead to increased non-compliance and unfortunately, devalue what had the potential to be a very positive initiative. At both Haslucks Green Junior School and Marston Green Infant Academy the restricted zones were based around a cul-de-sac road layout which limited the scale and impact of non-compliance caused by through traffic. The relatively short nature of both zones also naturally encouraged compliance with the new 20mph speed limit introduced through the scheme.

At these locations alternative parking provision was identified at the start of the scheme which minimised the impact of displacement parking on surrounding roads. It was suggested that this type of location, in terms of layout and size, was naturally suited to the successful deployment of a school streets initiative as they promoted self-enforcement. At both locations the schemes were well supported by local residents and compliance by parents was generally good. There did, however, remain a recurring frustration over a lack of enforcement, with residents keen to see high levels of consistent compliance achieved.

The number of vehicle movements that occurred around the school gate had reduced as a result of the scheme being introduced. Whilst the scheme had undoubtedly required some parents to change their routine and route to school, including creating, in some cases, a need to cross additional roads, there was no evidence that this had resulted in any decrease or increase in reportable incidents.

### ***Perth and Kinross Council***

In Perth and Kinross, SSCs have been termed School Exclusion Zones. Evidence in this section is based on a report to the Council's Environment and Infrastructure Committee in March 2019.<sup>13</sup>

The four School Exclusion Zones removed non-essential car trips from outside the school gates and encouraged pupils, with their parents/carers, to travel actively to and from school. The streets outside the school were closed to general traffic between 08:15 - 09:00 and 14:45 - 15:30 during the school term. Vehicles without permits were not allowed to drive in, out or around the School Exclusion Zones when the scheme was in operation. Signs were placed at the entrance to the scheme and flashing amber beacons indicated when the scheme was in operation. Only those with permits could access the School Exclusion Zone streets during the restricted periods.

Traffic surveys at Luncarty Primary School were undertaken before the zone was implemented in October 2016 and when the zone was operational in January 2019. These showed a decrease in the number of vehicles entering the zone between the hours of 08:00 to 10:00, with 186 fewer vehicles (-33%). In the afternoon between the hours of 14:00 to 16:00, there was a reduction in the number of vehicles entering the zone, with 133 fewer vehicles (-34%).

The Living Street WOW Travel Tracker allowed the pupils to record their journey to school. The data at Luncarty Primary School from August 2016 to November 2016, which was before the zone was operational, shows that on average the number of pupils travelling actively was 83%. From November 2016 to December 2018, the average proportion of journeys undertaken by active travel methods was 91% - an increase in active travel.

The majority of those surveyed would have liked the School Exclusion Zones retained (76%). The overall consensus was that the streets outside their property were safer (60%) and that the zone had not adversely impacted on respondents undertaking their daily activities (64%). 64% of respondents had also noticed a reduction in the number of vehicles entering the School Exclusion Zone at the start and end of the school day. The majority of respondents felt they had received sufficient information at the start of the trial (72%) and found applying for a permit an easy process (72%).

88% of respondents noted the scheme had had an impact on the displacement of vehicles. In Luncarty, vehicles were displaced onto Marshall Road, with complaints about inappropriate parking resulting in the road becoming restricted for other road users. The description 'restricted for other road users' was used to describe the restricted ability to use the road due to the presence of parked vehicles (predominantly parents' vehicles) on the roads outside the School Exclusion Zones (SEZ).<sup>14</sup>

In addition, the Council subsequently told us by email that:

"The issues raised on the periphery of the SEZ were not as bad as those that we had experienced previously. They were a diluted version of the parking congestion and very localised around a junction. What we did in this case was to provide a new shared use link to the school from a site identified as a Park and Stride site. This moved some of the vehicles away from the contentious area and helped mitigate the concerns. Since the meeting with the Community Council we have visited the site with another Local Authority who are

interested in introducing SEZs and the SEZ at Luncarty is working as we had hoped. They were impressed and are now seriously considering introducing SEZs in their council area.

So to conclude, post SEZ implementation additional minor measures were provided on some of the adjacent streets of our SEZs. This was to accommodate the migration of vehicles displaced from the SEZ. At present we are not concerned regarding road safety on these particular streets. However, going forward we will build in what we see as solutions to this potential problem in order to compliment the SEZ scheme, and before it is implemented.”

### ***East Lothian Council<sup>15</sup>***

East Lothian Council was one of the first highway authorities in the UK to undertake SSCs - it first proposed an ETRO in November 2012 covering two schools. East Lothian claims to lead the way nationally in the level of sustainable travel to and from school. The national average for pupils travelling to or from school by car is 24% whereas in East Lothian only 11% travel by car.

The first SSCs operated during the morning restricted period (08:30 – 09:30). There were on average 10 vehicle movements recorded over 15 minute periods during the restricted periods on four full school days (Mon – Thurs). The important points to note are:

- During the morning restricted period (08:30 – 09:30) there were on average 10 vehicle movements recorded
- During the afternoon restricted period (15:00 – 16:00) there were on average 15 vehicle movements recorded
- When morning nursery classes ended (80 pupils, 11:45 – 12:00) and afternoon nursery classes began (80 pupils, 12:45 – 13:00), during which there were no ETRO movement restrictions operating, 42 – 44 vehicle movements per hour were recorded. This gives an indication of the traffic that could be experienced during the key morning and afternoon school travel periods. When combined, the travelling school population (Kings Meadow, Haddington Infants and St. Mary’s) (nursery and primary) in this area was over 800 pupils.

In June 2015, Cabinet approved a permanent TRO in Neilson Park Road and Victoria Road in Haddington.<sup>16</sup> The Deputy Chief Executive (Partnerships and Community Services) advised Members of the Council that other suitable school streets in East Lothian would be considered for similar treatment in the future following the development of an appropriate assessment policy.

A ‘School Streets’ TRO aimed to ‘improve the road safety environment by reducing traffic, congestion and pollution around the school gates’, ‘encourage more pupils and families to walk, cycle or scoot to school’, and ‘respond to the desires of the school community and local residents.’

Key selection criteria used to assess schools for treatment included:

- Practicalities of delivering the scheme e.g. primarily the surrounding road environment
- Levels of congestion (“perceived” risk) near school gates
- Availability of suitable ‘Park and Stride’ locations (i.e. alternative locations where parents can park away from the school and walk e.g. community centres / leisure centre car parks)



- Percentage of children currently travelling to school by car (Source: Sustrans' Hands Up Scotland travel survey)
- Positive support from the schools and parent councils
- Current level of travel planning, walking, cycling and curriculum initiatives being undertaken.

According to the Council there was, and is, no actual ranking procedure in the process other than "it was invariably brought to our attention as a result of road safety concerns raised by the schools, schools community and any reports of accidents or 'near-miss' incidents."<sup>17</sup>

### ***London Borough of Camden***

The Healthy School Streets (HSS) programme has been in operation in Camden since 2016. The aim of the programme is to provide children with the opportunity to travel to and from school in a safer environment by restricting vehicles during school opening and closing times. This meets the Mayor of London's Healthy Streets objective of improving local environments by providing more space for walking and cycling, and better public spaces where people can interact. In addition, it meets a number of Camden's Transport Strategy objectives. These include improving local air quality, encouraging healthy lifestyles by promoting walking, cycling or the use of public transport for school journeys and reducing car ownership, car use and motor traffic levels in the borough.

Camden's Healthy School Streets project aims to create a safe and pleasant environment which encourages walking, cycling and scooting to school by closing roads to traffic at the start and end of the school day. HSS schemes in Camden look into the feasibility of implementing measures (including timed road closures) to improve the perceived and actual safety, and the street environment, around schools in the borough – and helping to facilitate a switch to more sustainable modes of travel.

The closures at St. Joseph's School use Department for Transport compliant signage enforced by folding bollards erected by school staff. The closure is run in conjunction with an intensive behaviour change programme within the school in order to reduce motor trips to school as far as possible before the closure is implemented and minimise displacement of school run traffic to the end of the street or onto nearby streets. The following evidence is taken from an undated briefing written before June 2017.<sup>18</sup>

In November 2014, Camden successfully secured funding from Transport for London's (TfL) 'Future Streets Incubator Fund' to trial these measures, supplemented by funding from Camden's Public Health team to support the monitoring of the programme. Three schools were then selected using a matrix system which took into account the following criteria:

- Area around the school locale that would benefit from a closure in terms of walkability and cycle-ability from a road closure, i.e. expected effect on congestion/air pollution
- STATS 19 Collisions on the road outside school in last 36 months
- A wider network in the area that supported walking and cycling
- A school that was engaged in the school travel planning system or showed willingness to promote modal shift to walking or cycling.



A trial scheme was introduced at St Joseph's, using an Experimental Traffic Order. An experimental Traffic Order only requires statutory consultation, with full consultation starting as part of the trial once it is in place, allowing people to experience the changes before responding.

Local feedback was broadly positive. One business continued to raise concerns about access for deliveries and the potential loss of business. However, the Council was not aware of any specific cases of business being lost. Data collected from hands-up surveys and via 'Travel Tracker' – a system whereby children record their travel daily – indicated that levels of driving to school had fallen dramatically, despite the closure only covering some 200m of the street. Indications were that driven trips to school had fallen by 43% between the period January–July 2016 (before the trial started) and the period July–December 2016 (after implementation, captured using the same method). The report noted, however, that "this (fall) may be as much as 66% since initial engagement in June 2015, however this data was collected by a different methodology and we will not have the post data from this method until June 2017."

At the Savernake Road scheme four residents of an adjacent road objected to the scheme on the ground they believed it would divert traffic towards Rona Rd, and cause pollution issues for them. One stated that not enough evidence had been given in the consultation document to warrant the need for the scheme.<sup>19</sup> The local authority consulted on a proposal for HSS in the New End School in 2019 and found the most common issues of concern were traffic displacement, parking/access, and pollution/idling.<sup>20</sup> Enforcement is through Automatic Number Plate Recognition and signage.

The Acland Burghley HSS scheme, implemented in 2018, lies close to the London Borough of Islington boundary. Islington had raised concerns about vehicular traffic displacement onto their roads. Although a full in-depth assessment of the impact of the proposals on displaced traffic was not undertaken due to the small nature of the scheme, preliminary analysis based on the geography of the area suggested that any displaced traffic would be more likely to reassign to roads managed by LB Camden. The report noted that "it is important to note that the restrictions only apply during school peak periods which does coincide with general peak in traffic in the morning but not the afternoon. As similar comments have been made by Camden residents with regards to displaced traffic onto other residential streets, officers are now recommending that the timed restriction be implemented under an Experimental Traffic Order (ETO)."<sup>21</sup> This scheme was made permanent in 2019.

Data on displacement of traffic across all sites in the study area shows there was a 13% decrease during the restricted times. Officers reported that although there had been some growth in traffic on Lady Somerset Road (an adjacent road), this had been less than the decrease on Burghley Road, especially outside the school, where there had been a decrease in motor traffic volumes of 74% in the morning hour restriction, and 65% in the afternoon hour restriction. In the morning hour, traffic flows on Lady Somerset Road were still less than 2.5 vehicles per minute (total, of both directions combined) and in the afternoon hour closure less than 1.5 vehicles per minute (total, of both directions combined). These are low traffic flows, and officers noted that the benefit of the closure outside the school has not led to significant displacement elsewhere.<sup>22</sup>

### ***London Borough of Croydon***

The Council first introduced school streets schemes in 2017. As at March 2020, Croydon had introduced 11 school street schemes, covering 16 schools, with the next 10 schemes under development. The plan is to reach 50 schemes by 2023. According to the Council, local authorities have the duty to exercise powers to secure the expeditious, convenient and safe movement of vehicles and other traffic, including pedestrians, and taking into consideration the national air quality strategy. Moreover, traditional parking enforcement proves ineffective near to schools.

The way in which the scheme is enforced is as follows:

- Unattended Automatic Number Plate Recognition (ANPR) camera provides continuous presence
- Permit holders on electronic exemption list
- Video file is reviewed by enforcement officer, who decides if there has been an infringement of restrictions
- Penalty Charge Notice (£130/£65) issued by post
- Camera switched-off during school holidays
- Initial one month period of advisory warning letters.



**Figure 1. Standard signage as used by the London Borough of Croydon**

The local authority identifies potential Health & Safety risks arising from SSCs which include:

- Dangerous parking practices
- Air polluting traffic congestion
- Hazardous road conditions, including speeding through-traffic at school times
- Recurring reports of confrontations between road users, parents and residents.

SSCs should have tolerable impact on essential traffic in the immediate and surrounding roads, including consideration to public transport and the number of residents and businesses. The zone start and end points must present drivers with a realistic opportunity to select an alternative route

and avoid potentially hazardous U-turns. As part of scheme assessment, the viability of alternative travel options were assessed, including the requirement of a minimum Public/Cycling Transport Accessibility Level (PTAL/CTAL)<sup>2</sup> of two. The Council claims that concerns about the parking displacement into neighbouring roads are largely unfounded.<sup>23</sup>

According to a Committee Report from the London Borough of Croydon, of May 2019,<sup>24</sup> residents in roads neighbouring the 3 pilot schemes raised concerns they would inherit school run problems. However, fears regarding significant excess parking did not materialise as less parking was evidently required and dispersed over a wider area, compared to the prior situation surrounding the school entrance. The initial complaints from residents in neighbouring roads have gradually reduced and now ceased. Parents have needed time to adjust and find alternatives to using the car. Parents become educated and socially influenced by observing other parents, demonstrating that children can walk to school or be dropped off further away from school and walk the last leg of the journey in a safer and healthier street. The school street is highly symbolic in this respect. It is yet unknown if and to what extent a school street scheme could affect future school choices.

The report also notes that it generally requires a relatively small change in the number of cars travelling in a road to make the difference between free-flowing traffic and obstructive congestion. When compensating for a low statistical confidence in the small number of samples in the existing data, it remains reasonable to conclude that the reduction in car use from the 3 existing school street schemes and their combination of STARS initiatives (SusTainably, Actively, Responsibly, Safely), has been significant, with more parents and children helped to use more active modes of travel.

Overall, follow up surveys show that schools and residents inside the zones are in favour of the schemes and that significantly more children now walk to school. The inconvenience of having to apply for an exemption is disliked, but is outweighed by the benefits. Concerns have been raised about the displacement of the residual car travel, with some school children now being dropped-off and picked-up in neighbouring roads. However, this effect of parent parking is reduced in amount and is dispersed over a wider area. Parents have needed time to find alternative arrangements to their usual car journey.<sup>25</sup>

### ***Southampton City Council***

Southampton City Council has reported on the temporary street closure on French Street, Southampton, for a local primary school.<sup>26</sup> Bollards to stop motorised traffic were implemented as part of the SSC. A pre-intervention questionnaire from November 2018 shows 52% of respondents scored between 6-10 on how intimidated they felt by the traffic on the street. The December 2018 questionnaires saw this reduce to 24% meaning that significantly fewer people felt intimidated by street traffic with the scheme in place. The results of a post-implementation questionnaire reveal that the vast majority of adult respondents (94%) felt the area was now safer for children, with the

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<sup>2</sup> PTALs are Public Transport Accessibility Levels and CTALs are Cycling Traffic Accessibility Levels which assess the viability of these as modes of travel in the local area. They are graded so e.g. for PTALs each area is graded between 0 and 6b, where a score of 0 is very poor access to public transport, and 6b is excellent access to public transport.

scheme in place. The vast majority (96%) also felt that the scheme should be in place permanently, with only 4% selecting the option of 'unsure' (this 4% accounted for one person), and no one selecting 'No' as an option.

### ***Ready for the School Street (Flanders)<sup>27</sup>***

In Flanders, 57 municipalities and cities are actively supporting one or more schools in setting up a school street. This requires the approval of the municipality for temporarily closing the road with the correct signage. If a school street is not possible the municipality can advise to (temporarily) reduce the parking options at the school gate and to pursue a policy of actively encouraging parents (and grandparents) to park further away from the school. Municipalities and cities also offer support.

A 'schoolstraat' is a street near an educational institution where motorized traffic is not allowed during certain hours. Usually this is at the beginning and end of the school day, for half an hour.

The closure is implemented with a traffic sign C3 with a bottom sign with the indication 'school street', unless the bottom sign provides an exception for certain motor vehicles. The street is accessible to pedestrians, bicycles and speed pedelecs. The street remains accessible to emergency services. Those who come by car can park a little further away and go on foot to the school gate. Driving out of the school street (e.g. by residents) is permitted unless otherwise determined by the road manager.

The concept of 'school street' has been included in the road code since 20 October 2018. The law was amended on 1 July 2019. Ghent took the lead in Belgium as the first location for school streets. In November 2012, the city started a pilot project to turn two dead-end streets into a school street. Streets with a lot of through traffic may not be eligible if a good diversion route is not available. In that case, step spots can be used.

A school street offers many advantages:

- Less fine dust and exhaust fumes
- Better air quality in the classroom. Less traffic chaos at the school gate
- A safe school environment for pedestrians and cyclists
- The number of sustainable trips is increasing
- Children, young people and parents exercise more
- Children gain more experience in traffic. The street is more accessible for emergency services. There is greater social control over offenders. A quiet and pleasant neighbourhood
- More contact between parents, teachers, local residents and local traders.

### ***The step spot (park and stride)***

A step spot is a location within walking distance of the school where parents can park. From there, children can walk to school independently or under supervision. Examples of step spots are: a town square, market, a library car park or a car park of a department store. So, a step spot is the local term for what is understood in the UK as park and stride.

When arranging a school street, it is useful to provide such step spots. This way, parents are helped to find an alternative parking space and the parking pressure does not move to surrounding streets. It is important to choose the step spots well (within walking distance) and to communicate clearly to parents. Step spots can also offer a solution when a school street is not possible. Through traffic is allowed in the street, but manoeuvring and (error) parking in front of the school entrance is avoided. For primary school students, a guided walking group (just like a 'walking bus') can start from the step spots. Parents who have little time in the morning can save time in this way. The children gather at the step spot and continue to school under the supervision of a parent or teacher.

In a section of the website addressing Frequently Asked Questions, regarding cars and parking redistribution it says: "Will the parking pressure simply not move? In the case of a school street, parents can no longer drive their car to the school gate to drop off or pick up their children. Whoever comes by car must park elsewhere and continue on foot. If no clear alternative is offered, the parking pressure may shift to the surrounding streets. That is why it is important to look for an alternative car park in advance and to ensure that everyone knows it well (step spots i.e. park and stride locations).

Removing the motorised traffic at the school gate is in itself an important step towards greater road safety, since this is the place where everyone must be at the same time. However, experience also shows that more people choose to go to school on foot or by bicycle when entering a school street. The share of pedestrians and cyclists increases on average by 15-20%. This offers a solution for the parking pressure in the school environment. Tip: Provide enough space in the bicycle shed."

### Remote interviews

Five remote interviews were undertaken with officers from:

- London Borough of Camden
- London Borough of Croydon
- London Borough of Southwark
- Solihull Metropolitan Borough Council
- Southampton City Council.

The interviews addressed topics in the study guide as shown at Annex 1. The main additional evidence established by these interviews is set out by topic below.

### ***Purpose and aims of SSCs***

Solihull: The Council has more of a focus on the active travel modes than other issues. Fundamentally, according to the Officer, it's about travel behaviour – to encourage active travel and tackle some of the perceptions and issues around 'school gates', not least parking. There is a three part approach: road safety; health and wellbeing, and school gate perceptions.

LB Camden: To provide children with the opportunity to travel actively and safely to school, noting that car ownership is very low in Camden. Camden declared a Climate Emergency last year. There is

a desire to introduce more car-free zones in consequence. Camden also seeks to reduce car ownership.

LB Croydon: To contribute to securing a healthy and safe environment near to schools including reducing air pollution, and to help children and parents use cars less and to walk, cycle and use public transport more.

LB Southwark: The biggest priority is the reduction in car usage to/from school. This has various benefits including making the roads safer (using the latest version of Vision Zero where fewer cars equate to fewer injuries) and better air quality exposure. Secondly, active travel promotion and adoption, and helping to tackle childhood obesity. Thirdly, road safety – which is helped by creating a car-free environment. In that order. The Council note that the second and third priorities follow on from the achievement from the first priority.

Southampton City Council: Making a healthy school journey, plus changing perceptions as to how roads should be used and who has priority. The aim is to disrupt existing travel behaviours.

### ***What is monitored?***

LB Camden: In terms of road safety if fewer cars are going past the school it means it will be safer. Road safety is broad, if air quality is unsafe, and children are driven to school which results in a lack of exercise then those are road safety issues. I report on the number of vehicles in whole area before and after, and air quality, and the STATS 19 data from TfL.

The way the Council selects the monitoring sites for traffic impacts usually happens in the feasibility phase of the project initially. At this point the team will get together and use their local knowledge/ maps to identify if there would likely be an impact on other roads near the school and which ones they are likely to be. Then during the consultation we report on the initial findings, and offer the respondents to the consultations a chance to suggest where they think traffic could be displaced to, and we add those sites to the ones we thought of.

LB Croydon: For the purpose of consultation, we defined the 'locality' as 300m road distance from the zone ends. Past consultations demonstrate that the response rate has levelled out at this distance – i.e. it is the same 3-5% that we would receive if we asked residents 3km away. This indicates that at 300m residents are either indifferent to or unperturbed by the proposal.

LB Southwark: So far there are 8 SSCs which started from September 2018. Monitoring does include road safety issues, and these get recorded but only use perceived road safety as it is difficult to know if collisions reported relate to school travel. Through emails and School Travel Plan officers the local authority will know if there has been an incident near the school involving school journey. This will guarantee that it was a school-related incident or not. This then will form part of the prioritisation process.

Solihull MBC: The local area is defined following a review of the site. We look at the existing road layout, position of distributor roads and alternative entry points into the site to determine the local area. In terms of specific criteria for monitoring, again this is determined by the site layout. On cul-de-sac routes we typically carry out a single location survey of speed any volume and select a



location on a straight section of carriageway away from any junctions that may impact or skew the results.

For multi route areas we have carried out speed surveys using the criteria above and used ANPR surveys to determine volumes and through traffic.

Southampton City Council: The first SSC evaluation was done as part of a European Commission project 'Metamorphosis'. There is a Travel Tracker which provides data by mode, plus observations of where cars go. More recent measurements have included traffic speed and volume and perceptions and observations. These are collected in first week of implementation.

The Council does a SSC as experimental trials 6 or 12 months so they don't actually have to consult. The team uses the Healthy Street interviews from TfL – how people find the street (Annex 2). There are baseline interviews then a few weeks after the intervention a repeat set of interviews. These ask questions including ease of crossing the road, intimidation by traffic, and rating how good the environment is for walking.

Interviewers are on street for a day. At the start and end of school day they interview parents and then residents between these hours. On neighbouring streets they do speak to residents so they will get responses. However, the focus of the report is mainly about the street itself, although there are ATC and monitoring of speed and volume of traffic on the adjacent roads. This is where road safety becomes a difficult thing to define. They use a definition taken from the latest Vision Zero – so just reducing cars improves road safety.

### ***STATS 19 and casualties***

Solihull: SMBC is a bit fortunate that it has relatively low KSIs so no reported collisions at pilot sites. Two of the three sites are cul-de-sacs. The Council has done a borough-wide two year review of collisions and is keeping an eye on things. No changes in collision data – no historic casualties or 'hot spots', and almost zero KSIs on the school journey.

The three pilot schemes in 2017 were monitored and there are no reported casualties (STATS 19).

Southampton City Council: For the two SSCs there were no significant road safety incidents although a child was knocked down at St Marys (a minor injury) prior to the scheme commencing. There is no information from the road safety team to say that there is a 'road safety' problem.

The Officer confirmed that there was no evidence of any road safety problems, and that displaced traffic was not a significant issue.

LB Southwark: The local authority team focus only on perceived road safety at present. The team did go through a process of considering STATS 19 data but the data wasn't for incidents and injuries outside of the school but further away and it is hard to show that these were incidents that occurred as part of the school journey. Consequently the Officer felt that it was hard to correlate STATS 19 data to the project when the clear evidence was only for perceived road safety concerns.

### ***Displaced vehicular traffic from SSCs***

Solihull: There is a high level of resident unhappiness about parking on school streets. The perception is that 'there will be a death unless you (Council) do something'. The Council undertook an 18 month review. This found that there was no real displacement of traffic. At one school there was a small increase (4 extra vehicles). From the network management perspective, the impacts have been negligible.

LB Croydon: Residents in the neighbourhood fear displacement of motorised traffic but the finding is that the traffic situation does not get worse and there have been reductions of up to 25% in motorised traffic.

The scheme is enforced by Parking Enforcement Officers in week one (Parking Services run SSCs). There are no displacement of traffic issues. A Residents Association has 'thanked' the Schools Street programme. Residents are now more relaxed and happier despite the fact that in consultations regarding proposed schemes they are primarily motivated by concerns for their own parking access.

LB: Camden: Volume of vehicles on surrounding streets – traffic in area as a whole has decreased. Gospel Oak Primary School in a year -decrease in traffic of 8% across the area. Previous scheme likewise found a small decrease. Experiment for a year – shows that there are no adverse effects. Seems people are generally avoiding the area. Area with high concentration of private schools. Have to do something – residents want action.

Regarding adjacent streets there have been small increases in cars parking there i.e. displaced but the numbers may be too small to bother residents. A very small number of parents parking badly. Perception of residents is that some worry about the scheme initially and then complaints fade away. Post-implementation 93% of respondents want the scheme to be made permanent after a year of a SSC being up and running while 7% post-implementation are against compared to 30% pre-implementation. There is not a traffic displacement issue.

LB Southwark: We have put in mitigation measures at 3 of the 8 SSCs to address pinch points, where there was congestion. Depending on the type of road layout some streets don't have pinch-points so the traffic disperses a bit more evenly. Mitigation measures include closing a whole length of an 'L' shaped street and not just the long arm i.e. the longer road which joins a shorter road at a right angle, which was the initial scheme. As a result of these mitigation measures and the general implementation of the SSC the initial fears of residents and parents tends to die away. There is always a majority (often 90%+) for making the SSC permanent.

Southampton City Council: Parking fears on neighbouring streets, some are unfounded and some traffic displacement does happen. We have looked at two pinch-points around schools to remedy these problems. We send residents a letter saying that the trial is going ahead. We tend to get quite a lot of emails from the road or around the road saying this is going to be detrimental e.g. access. Some locations have had some traffic displacement but not at others. It very much depends on the school, and location.



***Any notable differences between STATS 19 data and perceptions of safety that have been reported for streets neighbouring/near to those that have become SSCs?***

LB Croydon: Perceptions are that safety is really bad (before the SCC). There is not a big accident record but the perception of danger is the issue so parents then drive. There is more and more car use, 2% growth per year.

LB Southwark: Only use perceived road safety at present. Did go through a process of considering STATS 19 data but the data wasn't for right outside of the school.

Solihull: A lot of what is done on SSCs is around perception and not so much on data (i.e. before the SCC).

**Additional face-to-face interview**

One interview was undertaken in February face-to-face prior to the design of a Topic Guide and set of questions. The face-to-face interview took place with a road safety engineer for CEC involved in SSCs. The interview particularly focused on the effects of traffic displacement.

The officer reported that CEC was now looking at the effects of traffic displacement.<sup>28</sup> This included parking at crossing points for pedestrians, including junctions, in order to mitigate any increased road risk which might have resulted. The officer noted that public perceptions that motorised traffic in streets immediately outside the street closure area might result in significant increases in traffic had not occurred because displaced traffic came from multiple directions and so was dispersed and the impact diluted. More generally there had been an expectation from the CEC officers involved that residents could say 'you've ruined my life' but this had not happened.

The officer added that the CEC officers now get contacted on a roughly monthly basis by either schools or councillors asking for a SSC. CEC started out with an invitation to all primary schools but CEC has now stopped this approach and is looking for evidence of existing work e.g. Junior Road Safety Officers, or School Travel Plans as evidence of schools taking ownership of school travel issues.

Very little negative feedback had been received by CEC regarding SSC. There had been no reported casualties through STATS 19 nor reports of collisions or injuries via schools, parents or residents post implementation of the SSCs in Edinburgh. Behaviour of drivers coming through is better. There was only occasional police presence.

## Key findings and strength of evidence

We present below the key findings from the literature and interviews together with an assessment of the strength of the evidence for each finding. The strength of the evidence is assessed on whether findings are taken from stated Council objectives, objective data, surveys, officer opinion/experience and community engagement and level of engagement.

There is consistent evidence from local authorities engaged in SSC that traffic displacement does not cause road safety issues of any significance and that mitigating measures, where needed, have been applied successfully	<b>Strong</b>
SSCs are not driven by reported road casualties	<b>Strong</b>
Road safety issues are driven by perceptions of danger (and safety)	<b>Strong</b>
Increasing active travel is cited as a key or the key purpose of SSCs	<b>Strong</b>
Active travel levels increased at all SSC schools reported on by local authorities	<b>Medium</b>
Alternative parking for 'Park and Stride' helps reduce traffic displacement although a small number of badly parked vehicles remains an issues	<b>Medium</b>
In almost all cases the total number of motor vehicles across SSCs and neighbouring streets reduces	<b>Medium</b>
As active travel increases with SSCs this finding may be considered a litmus test that perceived road safety on surrounding streets as well as the SSC streets improves. The evidence indicates that SCCs do not lead to an increase in road traffic casualties.	<b>Medium</b>
SSCs are supported by the majority of parents and residents living on SSCs and neighbouring streets and their support increases after any trial period	<b>Medium</b>

### ***Included studies***

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2. East Lothian Council, 2015. Cabinet. Proposed Traffic Regulation Order – Prohibition of Vehicular Traffic (During school Travel Times): Neilson Park Road and Victoria Road, Haddington.
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6. London Borough of Camden, 2019. Healthy School Street – New End School Area. 24<sup>th</sup> May. <https://www.camden.gov.uk/documents/20142/3452947/New+End+HSS+Decision+report+signed+off.pdf/d6c5e4d0-31a7-1e65-dc4a-0f1698ad0f27> accessed 15th April 2020.

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9. London Borough of Croydon, 2020. Sarah Randell, School Streets presentation, March 16<sup>th</sup>.

10. London Borough of Croydon, 2019. Traffic Management Advisory Committee, 2<sup>nd</sup> May. School Streets. <https://democracy.croydon.gov.uk/documents/g1501/Public%20reports%20pack%2002nd-May-2019%2018.30%20Traffic%20Management%20Advisory%20Committee.pdf?T=10> Item 10 accessed 29<sup>th</sup> April 2020.

11. London Borough of Croydon, undated. Frequently Asked Questions. <https://getinvolved.croydon.gov.uk/uploadedfiles/School%20Street%20FAQs.pdf> accessed 15<sup>th</sup> April 2020.

12. Monteith-Skelton, S. 2017. Edinburgh's School Street Pilot. Dissertation, MSc Transport Planning and Engineering, Edinburgh Napier University.

13. Paraat voorde School straat (Ready for the School Street?) <https://www.paraatvoordeschoolstraat.be/wat/#> accessed 10<sup>th</sup> April 2020.

14. Perth and Kinross Council, 2016. Environment and Infrastructure Committee, School Exclusion Zones.

15. Solihull MBC, 2018. School Streets Pilot Project – Six month update and Review, June. Report to Cabinet Member for Transport & Highways.

16. Solihull MBC, 2019. School Streets Pilot Project - 12 month update and review.

## ***Annex 1: Topic Guide and Interview Questions***

### **Semi-structured Interviews with Local authority Transport staff tasked with School Street Closures**

Preamble: The main objective of the project is to carry out new research of traffic displacement around street closures in front of schools (School Street closures), to understand any associated impact on road safety on surrounding streets. The initial approach has been to undertake a Literature Review to gather and assess the state of the evidence regarding School Street Closures (SSCs). The work is being led by Sustrans with the Literature Review being undertaken by Adrian Davis from the Transport Research Institute, Edinburgh Napier University. The project is funded by the Road Safety Trust.

The findings to date have, however, proven to be extremely limited to the extent that no peer reviewed studies have been located in the English language. An alternative strategy is to conduct some semi-structured interviews with local government officers working on SSCs. Below are the question issues that will be used as prompts:

1. School Street Closures may have a number of aims. Please can you state what these are for your local authority?
2. If you have implemented SSCs can you say something regarding any road safety considerations you include? Did you monitor road safety on the closed and/or neighbouring streets? If so, how?
3. Do your STATS19 data show any changes in casualty numbers in the local area that you would attribute to the SSCs?
4. Can you say whether your local authority has considered issues of displaced vehicular traffic? If so, how? E.g. Have vehicular traffic volumes and speed been measured pre- and post SSCs?
5. Are there any notable differences between STATS 19 data and perceptions of safety that have been reported for streets neighbouring/near to those that have become SSCs?

## Annex 2: School Street Closure - Healthy Streets Survey

**1a. On your most recent visit, what was your main reason for being on 'Street name'?**

Choose an item.

**1b. What is your main mode of travel to 'street name'?**

Choose an item.

**1c. Has this changed since the timed closure?**

Choose an item.

**2a. Would you support the timed school street closure on 'Street Name' becoming permanent?**

Choose an item.

**3. For the following questions, based on your most recent visit to 'street name' please give a rating from 0-10 with 0 being 'very dissatisfied' and 10 being 'extremely satisfied'**

Overall how satisfied were you with the street (was it a good place to be?)	Choose an item.
How attractive did you find the street?	Choose an item.
How clean did you think the air on the street was?	Choose an item.
How noisy did you find the street?	Choose an item.
How enjoyable did you find being on the street?	Choose an item.
How easy do you think it would be to cross the street?	Choose an item.
How intimidated did you feel about the traffic on the street?	Choose an item.
To what extent do you agree with the statement that 'this street provides a good environment for people to walk in?'	Choose an item.

**4. Is there anything else you would like to tell us about your experience of 'Street Name'?**

Click here to enter text.

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